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Book reviews and notices*

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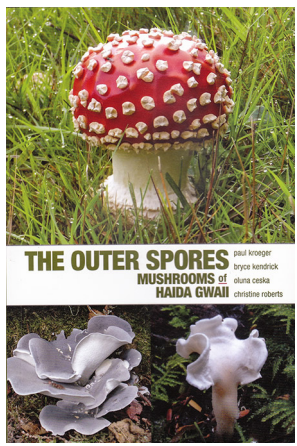
Abstract—Books reviewed include: General—The Outer Spores: Mushrooms of Haida Gwaii (Kroeger & al. 2012); Lichens & lichenized Fungi—Rare Lichens of Oregon (Exeter, Glade & Loring 2016); Lichens of Uttar Pradesh (Nayaka & Upreti 2013); *Ascomycota*—Plant pathogenic and endophytic *Botryosphaeriales* known from culture (eds: Phillips & al. 2013); A polyphasic taxonomy of *Daldinia* (*Xylariaceae*) (Stadler & al. 2014); Hypocrealean lineages of industrial and phytopathological importance (eds: Lombard, Groenewald & Crous 2015).

General



The Outer Spores: Mushrooms of Haida Gwaii. By Paul Kroeger, Bryce Kendrick, Oluna Ceska & Christine Roberts. 2012. Mycologue Publications, Sidney-by-the-Sea BC [www.mycolog.com] in cooperation with the Haida Gwaii Museum (Skidegate BC), Canada. 189 p., ~300 color photos and drawings, paperback. ISBN—978-0-9692237-3-3 Price (excl. postage): $20 (Canadian) Email: bryce@mycolog.com.

I have been happily immersed in the pages of this gem since last week, which I found temporarily forgotten among the 'books I must read soon" shelf. When labors of love are as entertainingly written as this one, the reader definitely benefits, and The Outer Spores will charm and edify a great many other mycologists and nature-lovers. The 15 × 23 cm volume covers the mushrooms

* Book reviews or books for consideration for coverage in this column should be sent to the *Editor-in-Chief* <editor@mycotaxon.com> 6720 NW Skyline, Portland OR 97229 USA.

as well as the history of Haida Gwaii (the post-2010 name for the Queen Charlotte Islands), "a wild and unspoiled corner of the world and the home of the Haida, a people with a deep and rich culture." This overview of 635 species identified from >2900 mushroom collections gathered during a 5-year survey constitutes the 'first ... guide dedicated to the fungi of Haida Gwaii."

The obligatory first chapter "about mushrooms" (here defined as "fungal fruiting bodies large enough to see") packs an impressive amount of information in ten pages and bears the imprimatur of the indomitable Bryce Kendrick (author of The Fifth Kingdom) by answering What are fungi? and What are Mushrooms? before moving on to ascomycete and basidiomycete basics, biological strategies, and a delightful drawing from Oluna's field notebook. Next follows a brief description of the 150 islands "that comprise a sort of miniature continent" accompanied by a map showing collection sites on the Queen Charlotte Windward Mountains, Skidegate Plateau, and Queen Charlotte Lowlands. A brief cultural history of the indigenous peoples follows; although the Haida did not traditionally consume mushrooms for food, they did venerate Tree-Fungus Man and used bracket fungi for tinder, medicines, and pigments.

Edible mushroom coverage begins with the inevitable safety cautions; here it appears that getting lost in the archipelago is more worrisome than the possibility of death by mushroom: the local forest district and search & rescue crews (motivated by the "significant cumulative cost of numerous searches") now find it more cost effective to distribute free survival kits (contained within a 1-litre water bottle) to pickers. With much of the area closed to mushroom picking, the authors devote five pages to where, when, and how to collect and eat/or preserve the mushroom quarry, closing with two duplicate (somewhat oddly, given the index on pp. 133–139) lists of the region's 28 choice edibles with references to later comments and/or photos, the first alphabetized by Latin name and the second by common name. Coverage of the profitable commercial mushroom harvest (primarily of golden, rainbow, blue, and winter chanterelles) precedes a discussion of current and future forest management practices.

Species accounts of 14 edible and 22 "notable" mushrooms, accompanied by generally excellent photos and distribution maps (plus one shot of a dominant herbivore cluster of millipedes munching an *Ganoderma tsugae* in the 'edible' mushroom chapter) precede observations on some little known roles and interactions of fungi, such as the truffle-tree-animal triumvirate, sand ecosystems, and nitrogen-seeking *Hebeloma, Laccaria,* and *Onygena* 'corpse finders'. Appropriately enough, next on the menu are toxins, symptoms, and good to somewhat blurry portraits of and maps for the region's 15 poisonous

mushroom species. Found here is *Inocybe calamistrata* (a mushroom I'd never thought of consuming, but its blue pigmented 'foot' might attract those vainly hoping for a hallucinogenic high). Also portrayed is a mushroom labeled as *Clitocybe* (now the type species of *Ampulloclitocybe*) *clavipes* looking far too slender, small, white, and suspiciously far more like *Clitocybe fragrans,* another known poisonous mushroom. This is one book that stresses the deadly poisonous *Amanita franchetii*—an otherwise beautiful mushroom common throughout Haida Gwaii.

Moving from the deadly poisonous to the strictly hallucinogenic, the next chapter focuses on two "main candidates" for "visionary mushrooms traditionally used as ritual or spiritual intoxicants in Haida Gwaii:" the liberty cap (*Psilocybe semilanceata,* probably introduced by immigrant farmers) and the fly agaric (*Amanita muscaria,* an abundant endemic). Six pages are devoted to the modern natural and legal history surrounding these "magic" mushrooms.

The atlas comprises 139 photos (of variable quality) covering 105 species, including a salal leaf infected by *Valdensia heterodoxa* (which escaped the clutches of the final checklist, although not the index). As this volume is not intended to serve as an identification guide, these photos merely whet the appetite for further information, and the atlas concludes with a list of recommended guides and references.

The authors next summarize the scope of their prodigious five-year inventory efforts: "Over the five years, we made eight field trips to Haida Gwaii of ten to fourteen days. In all, 113 areas were visited ... and we made and preserved 2906 collections representing 635 species and documented 812 species of fungi (not including lichens) from all available sources... We collected on nineteen islands ranging in size of 0.5 hectares to the over 648,000 hectares of Graham Island. The mushrooms ... remained largely unknown until 2003, when we began our survey." The general bibliography precedes six wonderful photos showing the authors (and Oluna's photographer and botanist husband Adolf) in the field.

The final index and acknowledgments follow a 23-page checklist of the 635 species identified thus far from the surveys. Having participated in several long-term fungal surveys (see Norvell & Exeter 2003), I understand all too well how much work was involved in identifying the collections after all the fieldwork was completed. To that end, I do wish the authors had provided a bit more detail on which references they used to identify their finds. In his 2013 book review, Steve Trudell suggested that in the absence of the usual identification caveats (e.g., cf., aff., sensu lato) the identifications should be "taken with a grain of mycological salt." He recently amended this (Trudell 2017) by adding that although the authors had originally included such identification disclaimers, the publisher

unfortunately removed them from the published checklist. Misidentifications or misapplications are to be expected, although the authors' strengths in certain genera (e.g., dark-spored saprobes for Paul, *Inocybe* for Oluna, and *Russula* for Christine) lend more credibility to the checklist. All of us who have conducted similar studies know full well that the real work of identification will continue years after the fieldwork is complete and will applaud the authors for having the courage to publish their results (however preliminary they might be) so promptly and in so engaging a format.

For the most part there are relatively few typographical or spelling errors—the few I noted were '*Beauvaria*' for *Beauveria,* '*Scerotinia*' for *Sclerotinia,* and '*prescottii*' for *prescotii* – and the nomenclature is more or less up-to-date for 2012. I counted three synonym doublets: *Bondarzewia mesenterica* + *B. montana, Cystolepiota sistrata* + *Lepiota seminuda,* and *Galerina autumnalis* + *G. venenata* (the last two synonyms of *G. marginata*). Oddly, while '*Lichenomphalia*' is shown on p. 9, only *Omphalina ericetorum* (accepted as *L. umbellifera* after a 25-year nomenclatural battle of epic proportions) appears on the list. Other nomenclatural holdovers include *Boletus* (instead of *Chalciporus*) *piperatus*, *Clitocybe* (instead of *Arrhenia*) *hohensis*, *Coprinus* (instead of *Coprinopsis*) *atramentarius, lagopus & phaeosporus,* Gomphus (instead of *Turbinellus*) *kauffmanii, Mycena* (instead of *Roridomyces*) *rorida, Omphalina viridis* (instead of *Arrhenia chlorocyanea*), *Paxillus* (instead of *Tapinella*) *panuoides, Phlogiotis* (instead of *Guepinia*) *tremelloides,* and *Rozites* (instead of *Cortinarius*) *caperata.* Fortunately, as all names can easily be updated using Index Fungorum, these discrepancies are hardly serious.

All in all, I find The Outer Spores: Mushrooms of the Haida Gwaii eminently readable, enchanting, and educational and recommend it as an excellent inspiration and guide for other surveys of hitherto untrammeled wildernesses.

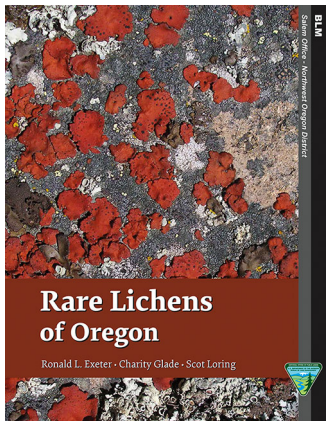
Kendrick, B. 2000. The Fifth Kingdom, 3rd edn. Hackett Publishing, 400 p. + CD ROM. ISBN 978-1-58510-022-4

Norvell LL, Exeter RL. 2004. Ectomycorrhizal epigeous basidiomycete diversity in Oregon's coastal montane *Pseudotsuga menziesii* forests – preliminary observations. IN Fungi in Forest Ecosystems: Diversity, Ecology, and Systematics, Cathy Cripps (ed.). Memoirs of the New York Botanical Garden 89: 159-189.

Trudell S. 2017. Book Review: The Outer Spores: Mushrooms of Haida Gwaii. The Mycophile May-June 53(3): 14–15. 2017 reissue accessed on 8 January 2017: http://www.namyco.org/the_outer_spores_mushrooms_of.php

Lichens & lichenized Fungi

Rare Lichens of Oregon. By Ronald Exeter, Charity Glade, Scot Loring. 2016. Government Printing Office, Salem (Northwest Oregon) District, Bureau of Land Management, Oregon, USA. 190 p., ~290 color photos & drawings, hard print + computer disc. ISBN—13: 978-0-9791310-6-6, 10: 0-979-1310-6-5; $30 (incl. postage, order by phone 1-503-375-5646). Low resolution web version online: https://www.researchgate.net/publication/309032897



Rare Lichens of Oregon is the fourth lavishly illustrated and impressive identification guide featuring rare, threatened, or endangered species shepherded through the government printing office maze by the first author. Ron, a botanist and colleague who adopted *Ramaria* as a genus needing closer scrutiny during our six-year field studies of ectomycorrhizal fungi, first approached the USDI-Bureau of Land Management Salem District about printing a photographic regional monograph covering a good many "species of interest' cited by the Northwest Forest Plan. *Ramaria* of the Pacific Northwestern United States (Exeter & al. 2006), which combined descriptions derived from research papers and personal collections with photographs taken by the original authorities and in the field, proved an immediate success. It was followed two years later by the equally well-received PNW *Phaeocollybia* monograph (Norvell & Exeter 2008) and then eight years later by the outstanding Rare Bryophytes of Oregon (Exeter & al. 2016).

This valuable addition to Pacific Northwest lichen species literature thoroughly covers 78 special status lichen species cited in the most recent Rare, Threatened and Endangered Species of Oregon (ORBIC 2016) plus *Leptogium compactum* (Stone et al. 2016), a not-yet-listed recently described species currently regarded as rare in Oregon. The 8½″ × 11″ print copy with sturdy paper cover and glossy pages is an excellent size for displaying the many detailed full color photos and maps.

Acknowledgments, a color bar key to sections, and table of contents precede a brief 2-page introduction, color-coded map of Oregon's counties and eco-regions, and a 3-page table summarizing in which eco-regions each species has been found. The authors refer readers to Macrolichens of the Pacific Northwest (McCune & Geiser 2009) and Lichens of North

America (Brodo & al. 2001) for detailed lichen structure and biology, keys, and glossaries, which are not included in this volume. The nomenclature has been checked with IndexFungorum (www.indexfungorum.org), and special note is made of nomenclatural changes for four species recently updated in the ORBIC list: *Circinaria* (≡ *Aspicilia*) *rogeri, Gyalolechia* (≡ *Caloplaca*) *stantonii, Pseudocyphellaria hawaiiensis* (= *P. perpetua*), and *Usnea subgracilis* (= *U. schadenbergiana*).

The species descriptions are divided into two sections: 58 macrolichens and 21 microlichens, with the species in each section listed alphabetically, particularly handy given the lack of an index. Left-hand text pages headed by the scientific name face right-hand illustration pages with (1)2–6 illustrations (superbly sharp photos, most taken by coauthor Scot Loring, are occasionally accompanied by lovely and equally detailed pencil habit drawings). Recent synonyms, common names, a field summary, and diagnostic characters precede a brief description of the thallus, apothecia or ascomata, chemistry, ecology, distribution, and comparison with similar species. Each treatment concludes with a list of references, flagging those with color plates. Not surprisingly in a book devoted to rare species, there are ten macrolichen and five microlichen species that are illustrated in color here for the first time.

The volume concludes with seven pages of maps showing distribution by county, a list of abbreviations and symbols, two pages of micro-images of the photobionts *Dictyochloropsis, Stichocoocus,* and *Trentephohlia*, a 9-page bibliography, a map of North America, and the CD-disc in a sleeve on a back cover illustrated with six (unfortunately not identified) lovely lichen photos. The inclusion of the algal partner recalled this mycologist's early days of trying in vain to match one lovely 'fungus' (strangely always fruiting on a powdery grayish green 'substrate') with the few *Hymenoscyphus* photos in Breitenbach & Kränzlin (1984). (My gratification at eventually discovering the lichenological nature of *Icmadophila ericetorum* only slightly offset my embarrassment at not recognizing its ubiquitous algal symbiont in the first place.)

The only drawback to this lovely and welcome addition to Oregon's BLM publishing pantheon is the retirement of its first author as Salem botanist shortly after publication. We wish our man in Salem well, but who now will serve as mycological guardian angel at the Northwest Oregon District Office?

Breitenbach J, Kränzlin F. 1984. Fungi of Switzerland 1. Ascomycetes. Lucerne: Edition Mykologia. 310 p.

Brodo IM, Sharnoff SD, Sharnoff S. 2001. Lichens of North America. Yale University Press, New Haven. 795 p.

Exeter RL, Norvell L, Cazares E. 2006. *Ramaria* of the Pacific Northwestern United States. USDI BLM/OR/WA/PT-06/050-1792, Salem, Oregon 157p. Lo-res web version: https://www.researchgate.net/publication/255719422

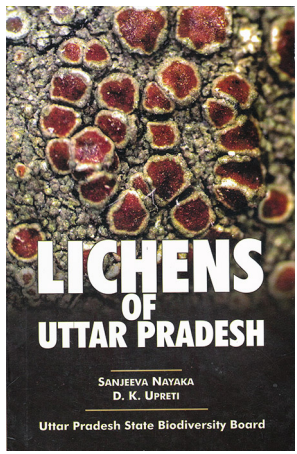
Exeter RL, Harpel J, Wagner D. 2016. Rare Bryophytes of Oregon. USDI-BLM Salem District. ISBN—13: 978–0–29791310–4–2. 379 p. Lo-res web version: https://www.researchgate.net/publication/305807271

McCune B, Geiser L. 2009. Macrolichens of the Pacific Northwest, 2nd edn. Oregon State University Press, Corvallis. 448 p.

Norvell LL, Exeter RL. 2009 (2008"). *Phaeocollybia* of Pacific Northwest North America. USDI-BLM/OR/WA/GI-08/100-1792, Salem, Oregon 228 p. Lo-res web version: https://www.researchgate.net/publication/307601665

ORBIC (Oregon Biodiversity Information Center). 2016. Rare, Threatened and Endangered Species of Oregon. Institute for Natural Resources, Portland State University, Portland, Oregon. 130 p.

Stone DF, Hinds JW, Anderson FL, Lendemer JC. 2016. A revision of the *Leptogium saturninum* group in North America. The Lichenologist 48(5): 387–421. https://doi.org/10.1017/S0024282916000323



Lichens of Uttar Pradesh. By Sanjeeva Nayaka & D.K. Upreti. 2014 ("2013"). U.P. State Biodiversity Board (printed by Shivam Arts), Lucknow, UP India. 177 p., ~405 color illustrations. PDF available online: http://www.upsbdb.org/pdf/2014/09/Books/2-Lichens_of_Uttar_Pradesh.pdf.

Lichens of Uttar Pradesh, which arrived by post some time ago, has been buried on my desk patiently awaiting rediscovery. Prepared by two expert lichenologists, this handy-sized (~14 × 22 cm) volume endeavors to expand the lichen coverage of a diminished Uttar Pradesh after the 1999 partition of Uttarakhand state, where until then most Uttar Pradesh collections had been collected. This 2014 publication is based on "critical observation of more than 2250 lichen specimens in NBRI and based on field studies in 35 (out of 75) districts in the state." Nayaka & Upreti, who treat 135 taxa representing 46 genera in 25 families, contributed 41 new records, thereby adding 61 species (11 new to India) to earlier lists, and excluded 15 cited in Nayaka & Upreti (2011) based on erroneous identification or doubtful occurrence.

Two forwards and an author preface precede a brief but engagingly written introduction that touches on the symbiotic nature of lichens ("at a given time [a] lichen can have members from two to three kingdoms altogether: *Fungi, Protista,* and *Monera* sensu Cavalier Smith 2002)" as well as outlines their household uses, medicinal potential, and importance in perfumery and dyes and as air pollution indicators. I was intrigued to learn that lichens form an integral ingredient in Garam Masala (India's famed powdered spice) and that several different species (35 identified in one spice mixture) may be used in a single spice. Lichens are believed to have curative powers for everything from headaches to leprosy and Uttar Pradeshis use smoke produced by burning *Thamnola vermicularis* to kill germs in milk storage containers.

A brief overview of the geography of the state (home to almost 200 million people) covers the climate, topography, and vegetation. There follow pages on the status of lichen diversity in India, an outline of lichen study in Uttar Pradesh, a note on the current state of knowledge on lichen diversity in the state, a list of the now excluded previously reported 16 lichen taxa, and a conspectus of the 135 taxa covered taxonomically. The introductory pages conclude with methodological notes, a map of Uttar Pradesh districts, and photos of six different lichen habitats.

A 5-page key to the lichen genera of Uttar Pradesh introduces the 139-page taxonomic section, organized alphabetically by genus. Generic names (with authorities and family) are accompanied by formal generic descriptions, numbers of species reported both worldwide and in India, and important literature references. Where needed, a species key precedes individual species treatments, each of which presents a full morphological description, chemistry analysis, and ecological notes accompanied by 3–4 illustrations with photos depicting the lichen macromorphology and/or important anatomical characters plus a district-linked distribution map. Although the photos are small and have a somewhat soft focus, they are definitely adequate for identification purposes, making the book quite useful in the field. References, a welcome 5-page glossary, and a taxonomic index to families and species organized by genus conclude the volume.

Nomenclaturally, the authors have definitely done their homework and have updated names in accordance with Ertz (2009) Lücking (2009), Lücking et al. (2009), Mangold et al. (2009), Sharma et al. (2012), and Staiger (2012); a quick comparison of their names with those cited in IndexFungorum confirms that the nomenclature is current. The care taken to exclude misdetermined (or misreported) species from their 2011 list suggests that their taxonomy is equally reliable. Unfortunately this care does not extent to proof-reading, as there

are a great many typographical or grammatical errors sprinkled throughout the text—a firm 'fooling' (for 'footing' in the first forward), *Anisomeridium* '*calicicolum*' (p. 22, for *calicolum,*' which should, however, be correctly transcribed in Latin as *calicola*), and 'Moussurie' (p. 166, for 'Missouri') Botanical Gardens are but a few—but fortunately these errors generally do not obscure the meaning and do not detract significantly from the utility of the book.

Given the size of the state, it is certain that additional lichen species will be found. The authors are to be commended for providing such a useful resource for continuing lichen research in Uttar Pradesh.

Ertz D. 2009. Revision of the corticolous *Opegrapha* species from the palaeotropics. Bibl. Lichenol. 102. J. Cramer, Berlin & Stuttgart.

Lücking R. 2009. The taxonomy of the genus *Graphis* sensu Staiger (*Ascomycota; Ostropales; Graphidaceae*). Lichenologist 41(4): 319–362.

Lücking R, Archer AW, Aptroot A. 2009. A world-wide key to the genus *Graphis* (*Ascomycota; Ostropales; Graphidaceae*). Lichenologist 41(4): 363–452.

Mangold A, Elix JA, Lumbsch HT. 2009. *Thelotremataceae.* 195–420 in Flora of Australia Volume 57. Lichens 5 (PM McCarthy, ed.). ABRS and CSIRO Publishing, Canberra and Melbourne.

Nayaka S, Upreti DK. 2011. An inventory of lichens in Uttar Pradesh through bibliographic compilation. 24–35 in National Conference on Forest Biodiversity: Earth's Living Treasure. Uttar Pradesh State Biodiversity Board, Lucknow.

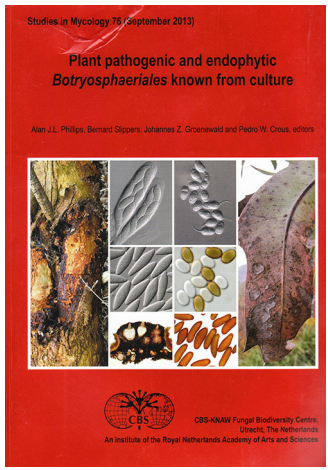
Sharma B, Khadlikar P, Makhija U.2012. New species and new combinations in the lichen genera *Fissurina* and *Hemithecium* from India. Lichenologist 44: 339-362.

Staiger B. 2012. Die Flechtenfamilie *Graphidaceae.* Studien in Richtung einer natürlichen Gliederung. Biblioth. Lichenol. 85. J. Cramer, Berlin & Stuttgart.

Ascomycota

In perusing my bookshelves, I was startled to discover several excellent texts that Mycotaxon—except for an occasional brief announcement—has pretty much ignored. Because these invaluable Studies in Mycology volumes (published by the Centraalbureau voor Schimmelcultures) merit much closer scrutiny, I have taken the liberty of briefly summarizing on the next pages the contents of three past issues, all open access and thus immediately accessible online through ScienceDirect.

All papers are accompanied by excellent phylogenetic analyses, superb photographic plates (most tending toward the spectacular), and scientifically rigorous taxonomic descriptions.

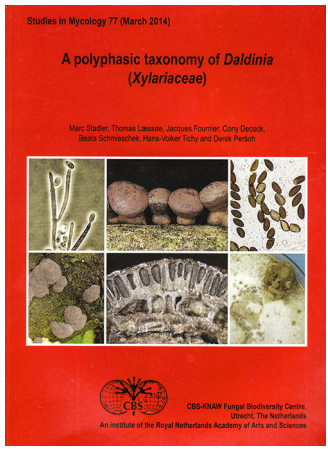

Studies in Mycology 76 (September 2013)
Plant pathogenic and endophytic
Botryosphaeriales known from culture
Alan J.L. Phillips, Bernard Slippers, Johannes Z. Groenewald and Pedro W. Crous, editors
CBS-KNAW Fungal Biodiversity Centre,
Utrecht, The Netherlands
An institute of the Royal Netherlands Academy of Arts and Sciences

Plant pathogenic and endophytic *Botryosphaeriales* known from culture. Alan J.L. Phillips, Bernard Slippers, Johannes Z. Groenewald & Pedro Crous, eds. 2013. Studies in Mycology 76 (September 2013). PDFs online: http://www.sciencedirect.com/science/journal/01660616/76

This issue, dedicated to Dr. Robert A. Shoemaker, a Canadian plant pathologist well known for his extensive studies on *Dothideomycetes,* presents three papers. "A phylogenetic re-evaluation of *Phyllosticta*" by S Wikee, L Lombard, C Nakashima, K Motohashi, E Chukeatirote, R Cheewangkoon, EKH McKenzie, KD Hyde & PW Crous (pp. 1–29) redefines *Phyllosticta* (noting "in moving to a unit nomenclature for fungi...*Phyllosticta* was chosen over *Guignardia*) and resurrects the older family name *Phyllostictaceae.* A multigene DNA dataset used to investigate 129 *Phyllosticta* isolates (and representing ~170 species names) showed that many were synonyms of *P. capitalensis* and supported 12 new species and two new combinations.

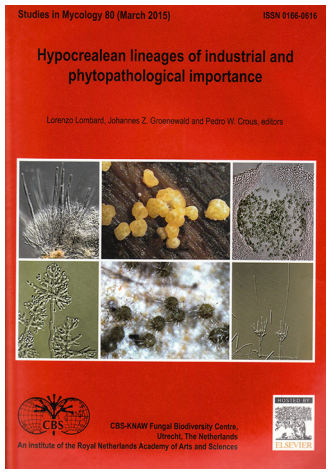
"Phylogenetic lineages in the *Botryosphaeriales:* a systematic and evolutionary framework" by B Slippers, E Boissin, AJL Phillips, JZ Groenewald, L Lombard, MJ Wingfield, A Postma, T Burgess & PW Crous (pp. 31–49) covers the phylogenetic evaluation of botryosphaerialean genera known from culture and recognizes six families: the previously named *Botryosphaeriaceae, Phyllostictaceae,* and *Planistromellaceae* and the newly proposed *Aplosporellaceae, Melanopsaceae,* and *Saccharataceae.*

"The *Botryosphaeriaceae:* genera and species known from culture" by AJL Phillips, A Alves, J Abdollahzadeh, B Slippers, MJ Wingfield, JZ Groenewald & PW Crous (pp. 51–167) focuses on the phylogenetic recognition of 17 genera and 110 species presently known only from culture. Keys to the genera and species are provided, and one new species (*Neofusicoccum batangarum*) and 12 new combinations (in *Botryosphaeria, Cophinforma, Dothiorella, Lasiodiplodia, Neoscytalidium,* and *Sphaeropsis*) are proposed.


Studies in Mycology 77 (March 2014)
A polyphasic taxonomy of Daldinia (Xylariaceae)
Marc Stadler, Thomas Læssøe, Jacques Fournier, Cony Decock, Beata Schmieschek, Hans-Volker Tichy and Derek Peršoh
CBS-KNAW Fungal Biodiversity Centre, Utrecht, The Netherlands
An institute of the Royal Netherlands Academy of Arts and Sciences

A polyphasic taxonomy of *Daldinia* (*Xylariaceae*). By Marc Stadler. Thomas Læssøe, Jacques Fournier, Cony Decock, Beata Schmieschek, Hans-Volker Tichy & Derek Peršoh. 2014. Studies in Mycology 77 (March 2014): 1–143. PDF online: http://www.sciencedirect.com/science/journal/01660616/77

For someone only dimly aware that there were more species in *Daldinia* than *D. concentrica*, this thorough exposition of 47 taxa and their morphology, biogeography, chorology, ecology, and secondary metabolites was most welcome. The genus, divided into 5 major groups based on morphological and chemotaxonomic characters and supported by molecular analysis, demonstrates the additional taxonomic value that fungal secondary metabolite profiles can provide beyond the species rank. The genus as amended incorporates many new synonymies, excludes several previously published names, and admits 6 new species and two new combinations to the genus. The rDNA-based phylotree separates *Daldinia* from *Annulohypoxylon* and *Hypoxylon* while nesting representatives of small predominantly tropical genera within its clade.


Studies in Mycology 80 (March 2015)
ISSN 0166-0616
Hypocrealean lineages of industrial and phytopathological importance
Lorenzo Lombard, Johannes Z. Groenewald and Pedro W. Crous, editors
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Hypocrealean lineages of industrial and phytopathological importance. By Lorenzo Lombard, Johannes Z. Groenewald & Pedro Crous, eds. 2015. Studies in Mycology 80 (March 2015). PDFs online: http://www.sciencedirect.com/science/journal/01660616/80

Dedicated to Amy Rossman, an American mycologist "well known to mycologists and plant pathologists around the world for her scientific passion for ... hypocrealean fungi"

[not to mention her engagingly cheerful and encouraging personality], these five papers focus on the taxonomy and revision of the generic and species concepts in the *Hypocreaceae* and *Nectriaceae* (*Hypocreales*).

"Biodiversity of *Trichoderma* (*Hypocreaceae*) in southern Europe and Macaronesia" by WM Jaklitsch & H Voglmayr (pp. 1–87) recognizes 90 *Trichoderma* species (the 17 new to science dazzlingly illustrated by excellent photos) supported by TEF1-, RPB2-, and ACL1-based sequence analyses from >650 identified specimens.

"Diversity and potential impact of *Calonectria* species in *Eucalyptus* plantations in Brazil" by RF Alfenas, L Lombard, OL Pereira, AC Alfenas, and PW Crous (pp. 88–130) identifies 20 *Calonectria* species new to science plus *C. pseudopteridis* (nom. nov. for *Cylindrocladium macrosporum*) based on sequence analyses of the β-tubulin, CMD, TEF1α, and HIS3 DNA regions and reveals the *C. pteridis* complex as the most common species complex in Brazil's *Eucalyptus* plantations.

"Novel taxa in the *Fusarium fujikuroi* species complex from *Pinus* spp." by DA Herron, MJ Wingfield, BD Wingfield, CA Rodas, S Marincowitz & ET Steenkamp (pp. 131–150) explores the diversity of *Fusarium* species associated with four species of diseased pine in Colombian plantations and nurseries. β-tubulin and TEF1α sequence analyses of 57 isolates sampled from plants displaying stem cankers, branch dieback, and seedling root/collar rot identified more than ten *Fusarium* species, of which five are named as new. Four of the new species displayed a level of pathogenicity on *Pinus patula* comparable to that of the pitch canker pathogen *F. circinatum*.

"New species, hyper-diversity and potential importance of *Calonectria* spp. from *Eucalyptus* in South China" by L Lombard, SF Chen, X Mou, CD Zhou, PW Crous & MJ Wingfield (pp. 151–188) summarizes surveys of *Eucalyptus* displaying symptoms of leaf blight in Guangdong, Guangxi, and Hainan provinces that produced a large number of *Calonectria* isolates. Of the 21 isolates identified using the Consolidated Species Concept employing morphological characters and DNA sequence comparisons of the β-tubulin, CMD, TEF1α, and HIS3 gene regions, 18 represented new taxa (12 in the Sphaero-Naviculate Group; 6 in the Prolate Group). Southeast Asia appears to represent a centre of biodiversity for the Sphaero-Naviculate Group, which could be an important constraint to eucalypt forestry in China.

"Generic concepts in *Nectriaceae*" by L Lombard, NA van der Merwe, JZ Groenewald & PW Crous (pp. 189–245). Nectriaceous species are unified by phenotypic characters such as uniloculate ascomata that are yellow or orange-

red to purple and exhibit phialidic asexual morphs. The family's generic concepts have been poorly defined due to the unavailability of DNA sequence data for many genera. A multi-gene phylogenetic analysis of known nectriaceous genera using partial 28S LSU sequences and the ITS1+5.8S+ITS2, ACL1, RPB1, RPB2, ACT, TUB2, CMDA, HIS3, & TEF1 regions from available type and authentic strains support six new genera (*Aquanectria, Bisifusarium, Coccinonectria, Paracremonium, Rectifusarium, Xenoacremonium*) that accommodate species previously classified based solely on morphology. Additionally several generic names are proposed for synonymy based on the abolishment of dual nomenclature, and a new family (*Tilachilidiaceae*) is introduced for two genera previously accommodated in the *Nectriaceae*.